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(54) Title: ACTIVIN RECEPTOR-LIKE KINASES, PROTEINS HAVING SERINE THREONINE KINASE DOMAINS AND THEIR USE

cons.aa	G C G V	A X	Z
MTGFBR-II	LDTLVGKGRFAEVYCAULKQNTSEQFETVAVKIFFPYDHYASWKRKDIFPSDIINLJHENILQF		
sActr-IIIB	LLEIKARGRGFCVWKAQLMN-----DFAVKI KPLQDKQSWSEREI FSTPCQHQHEMLQF		
sActr-II	LLEVKGARGRGFCVWKAQLMN-----EYAVAKIPPIQOKQSWNQEVEVYSIPQGQHENILQF		
dAf-1	-----EAVAKVFNAAIDEPAFKHEI EIFETRMLRHPNVLY		
subdomains	I	II	III
			IV

bTCFBR-II	LTAEEKRTTELCKQYMLITAFHAKGNLQEYLTRYVISWEDLRNGSSSLARGLSKLHSQDTP-C
bACTR-IIIB	IAAEKRGSGNLEVELMLITAFHDKGSLIDYLKGNTIWTNEELCHVAETMSRGISYHEDWPWCR
bACTR-II	IAGAZKRGTSVVDLMLITAFHEKGSLSDFLXARVVSWNELCHIAETMARGLYLAHEDIFGKL
daf-1	IGCSRKVDTGFTELMLVIEYHPSGSLHDFFLENTVNIETYNNLMRSTASGLAFIHMNQIGGSK
subdomains	V VI-A

CONS.8A	DLK N	BPG
RTGFBR-II	-GRPKMPIVRDLKESNLVNLDTCCLCDLGLSRL--	-CPYSSVDDLANSQGVGTARYMAP
RACTR-IIIB	-GECHKPSIAHRDFKSKNVLLKSDLTAVLADPGLAVRF--	-EPGKPPGCD--THQQVGTRRYMAP
RACTR-II	-DGHKPAISHRDKSTPKVLLKNTAICLADFLGLAKF--	-BACKSAGD--THQQVGTRRYMAP
df-1	-ESHKPAHMDRIKESNTMYKRDLTCAIGDLGLSLSKPEDAASDIAN-	-ENYKGCTVRYLAP
subdomains	VI-B	VII
		VIII

(57) Abstract

A new receptor family has been identified, of activin-like kinases. Novel proteins have activin/TGF- β -type I receptor functionality, and have consequential diagnostic/therapeutic utility. They may have a serine/threonine kinase domain, a DFKSRN or DLKSKN sequence in subdomain VIB and/or a GTKRYM sequence in subdomain VIII.